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ABSTRACT

The effects of three different environmental conditions on the frequency of self-injurious and self-stimulation behavior in 10 brain damaged, profoundly retarded children (under 12 years old) were examined employing a time-sampled behavioral observation. The environmental conditions were social interaction, high demand, and stimulus deprivation conditions. The results suggest that self-stimulation behavior occurs more frequently under conditions of stimulus deprivation as opposed to conditions where demands were placed on the children or in conditions where the children were engaging in positive reinforcing events. These results suggest that environmental modifications may be warranted in helping to control these behaviors. (Author/CL)

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Self Injurious and Self Stimulation Behavior in Brain Damaged Children

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Abstract

The effects of three different environmental conditions on the frequency of self injurious and self stimulation behavior in 10 brain damaged children were examined employing a time-sampled behavioral observation. The results suggest that self stimulation behavior occurs more frequently under conditions of stimulus deprivation as opposed to conditions where demands were placed on the children or in conditions where the children were engaging in positive reinforcing events. These results suggest environmental modifications may be warranted in helping to control these behaviors.

Self Injurious and Self Stimulation Behavior in Brain Damaged Children

Self stimulation and self injury are probably the most damaging and distressing behaviors in the repertoires of severely retarded children. They are very recalcitrant and costly to treat. Both of these behaviors have been found to interfere with the acquisition of more adaptive responses. Carr (1977) published a review in which he proposed that positive reinforcement, negative reinforcement and stimulus deprivation conditions may act as the maintaining or setting stimuli for these behaviors. Therefore, the goal of this present study was to measure with time-sampled observations the effects of social interaction, high demand and stimulus deprivation conditions on the frequency of self injurious behavior (SIB) and self stimulation behavior (SSB) in a group of developmentally disabled children while they are in school and at home.

Method

Subjects

The subjects were ten brain damaged, profoundly retarded children under 12 years of age, who resided in an intensive care facility for the mentally retarded. All of the children have I.Q.'s under 20 and suffer from deficits in cognitive, language, motor, social and self help development. Caregivers selected these ten children because they engaged in high frequencies of SIB and SSB.

Procedure

The frequency, topography, and social context of SIB and SSB of each child were recorded during 14 5-minute behavioral observations. Observations were made during all the waking hours of the children. The day was divided into 7 2-hour time periods from 7:00 A:M to 9:00 P:M. Each child was observed on two separate days in each two hour time period yielding a total of 70 minutes of observation and recording. A sample of one minute of the protocol is presented in Table 1.

Insert Table 1 about here

In order to test three of Carr's motivational hypotheses, the frequency of SSB and SIB under three different environmental conditions was tested. The Positive Reinforcement condition consisted of those intervals when the child was awake, engaging in activities or being touched or talked to by a caregiver. The Negative Reinforcement or Demand condition consisted of those intervals where the child was awake, and engaging in a demanding activity such as dressing and The Stimulus Deprivation condition was definded by those intervals where the child was awake, with no structured activities or personal or object interaction. These conditions as well as how they were operationally defined by this study are listed in Table 2

Insert Table 2 about here

Results

To analyze whether SIB and SSB varied as a function of environmental conditions, two separate 1 x 3 ANOVAS were performed. Table 3 lists the mean percent of intervals in which SIB and SSB occurred as a function of conditions.

Insert Table 3 about here

There was a significant effect found for SSB. As evidenced by post hoc analyses the children engaged in significantly more SSB under the Stimulus Deprivation condition than either the Positive Reinforcement or Negative Reinforcement conditions. The Stimulus Deprivation condition also fostered more SIB than the other two conditions. However, this effect was not significant at a .05 level.

Conclusions

Although this was a pilot study which utilized a small sample and a select group of subjects, it is felt that some tentative conclusions can be drawn and some research and treatment implications may be warranted.

First, it may be possible to differentiate the environmental contributions to the frequency of SIB and SSB. Children engaged in more SIB and SSB behavior when they were awake and without any structured activities. Thus, this study holds promise for suggesting changes in ward practices may be warranted.

A second implication of these results is that it appears that the use of a time-sampled observation protocol (which includes social setting variables) holds promise as a measure that may be generally applicable across studies on SSB and SIB.

Currently, while the literature is replete with single subject designs in this area, it is difficult to compare across studies because no standardized measure of these behaviors and the social context exists.

As a final note, it should be noted in Table 4 that it is possible to look at relationships between social environmental conditions and frequencies of SSB and SIB for individual children.

Insert Table 4 about here

As evidenced in the Table subject #3 and subject #7 (under SIB) were more self injurious under the Positive Reinforcement condition as compared to the Stimulus Deprivation condition which is counter to our mean findings. These individual records can be useful in planning treatments as well as in monitoring the effects of psychotropic medication so frequently prescribed for SIB treatment.

More research will be needed to further corroborate these findings.

References

Carr, E.G. (1977). The motivation for self-injurious behavior: A review of some hypotheses. Psychological Bulletin, 84, 800-816.

TABLE 1

Sample of a one minute interval of the Observation Protocol

Child _____ Date _____

Observer _____ Living Unit _____

	15"	15"	15"	15"
Time _____	D	D	D	D
Location _____	T	T	T	T
State _____	CVL	CVL	CVL	CVL
SSB/SIB _____	POSJ	POSJ	POSJ	POSJ

Definitions of Observed Behaviors

Location: 1.)Bed 2.)Pod 3.)School 4.)Therapy 5.)Play Area 6.)Other

Activity: 1.)Bathing 2.)Dressing 3.)Feeding 4.)Therapy 5.)Teaching 6.)Playing 7.)Positioning/transporting 8.)Other

State: 1.)Awake 2.)Asleep

D (Direct Talk) - Talking, humming, singing or other noises directed by an adult towards the child.

T (Touch) - Any tactile contact initiated by adult towards the child.

C (Crying) - Vocal noise indicating obvious distress, tears or sobbing by child.

V (Vocalization) - Any sound made by a child that is not clearly crying or language and is not a result of breathing or respiratory functions.

L (Language) - Any understandable word by the child.

P (Person Interaction) - Initiating or responsive behavior towards an adult by the child.

O (Object Interaction) - Child makes tactile contact with or else is aware of objects.

S (Self Stimulation) - Highly idiosyncratic stereotyped responses that appear to provide the performer with sensory input but have no obvious social consequences.

J (Self Injury) - Highly stereotyped behavior resulting in direct physical damage to the individual engaging in the behavior.

TABLE 2

Definitions of Environmental Conditions

Intervals	State	Activity	Behaviors
Positive Reinforcement	Awake	Any	D or T
Negative Reinforcement	Awake	Eating, Dressing, Therapy, or Transporting	Any
Stimulus Deprivation	Awake	None	No P,O,D and T

TABLE 3

Mean Percent Intervals of SSB and SIB

	Stimulus Deprivation	Negative Reinforcement	Positive Reinforcement
SSB[1]	48.15	18.92	15.13
SIB[2]	8.10	3.20	3.90

[1] $F(2,18) = 13.93$, $p < .01$

[2] $F(2,18) = 2.11$, $p > .05$

TABLE 4

Individual Records of Percent Intervals of SSB and SIB

Under the Three Setting Conditions

	SSB			SIB		
	P.R.[1]	N.R.[2]	S.D[3]	P.R	N.R	S.D.
Subjects						
1	8.3	2.8	45.0	0.0	2.8	0.0
2	30.7	39.8	79.6	2.2	0.0	10.8
3.	55.8	54.5	84.9	9.6	4.8	2.3
4	14.1	35.3	32.2	1.4	8.8	26.3
5	1.2	9.7	57.7	0.0	0.0	0.0
6	22.5	21.1	62.7	1.1	1.3	8.1
7	6.9	13.2	91.3	12.9	4.4	1.0
8	0.0	0.0	0.0	4.5	4.8	6.2
9	11.8	12.5	16.4	0.0	0.0	7.8
10	0.0	0.0	11.7	7.1	6.3	18.4

[1]Positive Reinforcement Condition
[2]Negative Reinforcement Condition
[3]Stimulus Deprivation Condition